A Practitioner's approach to Drucker's Knowledge- Worker Productivity in the 21st Century—a New Model (Part Two)

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Abstract

This is the second article on the empirical study of Drucker's knowledge-worker productivity. The first article examined productivity in the context of the 21st century, focusing on Drucker's six major factors determining knowledge-worker productivity. From these six factors, a Baldrige-based (2006) building-block questionnaire survey and a follow-up structured interview were empirically tested to establish knowledge-worker productivity level of readiness and alignment issues when integrating business processes with Drucker's knowledge-worker productivity.

The second article is based on a recent empirical study of a mixed-method nature. The study confirmed how the application of knowledge-worker productivity practice could improve productivity, the quality of work, empowers knowledge workers to accomplish their 'tasks' and, consequently, the 'organisation tasks' by following an organisational unified strategy in an interdependent way that brings about a doing thing right approach.

In conclusion, this initial study of a knowledge-intensive organisation, in general, fully supported Drucker's proposition of the six major factors determining knowledge-worker productivity. It is suggested that more studies using this mixed-method technique should be conducted to provide the quantitative data to strengthen the methodology.

Keywords: *Drucker's knowledge-worker productivity, mixed-method research, organisational readiness, questionnaire survey, structured interview, organisation.*

JEL classification: M10, M12.

Introduction

"The best research is as at home in Business Week or Harvard Business Review as it is in Administrative Science Quarterly or the Academy of Management Review. Of course, the jargon is different. But the fundamental ideas in the best research translate into meaningful implications for both researcher and manager. (Eisenhardt, 1998)."

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As noted in the above quote, an important part of any research project is to translate research findings into meaningful conclusions for both the academic and the practitioner's worlds. This article starts with a discussion of the research question and key findings drawn from the three research propositions. Next to be discussed are the theoretical and practical implications indicating how this research has successfully contributed to the current body of knowledge in the areas of Drucker's (1999) knowledge-worker productivity theory and the practitioner's approach to integrating work process with Drucker's six factors determining knowledge-worker productivity. The limitations of multiple case study research, recommendations for future research and the conclusion of the study form the final sections of this thesis.

1. Research issue discussions

This research sought to answer the question "*How should knowledge-intensive organisations, such as the Southern Cross University (SCU) Library, with operations spread over three campuses, integrate their work processes on the basis of Drucker's six major factors determining knowledge-worker productivity?*" The lack of a practitioner's approach to this question, and the lack of relevant and available literature generated the research problem that "*There is no practitioner model for knowledge-intensive organisations, such as the SCU Library, with operations spread over three campuses, to enable them to integrate their work processes with Drucker's six major factors determining knowledge-worker productivity.*" Three research propositions were developed to address the research question and resolve the research problem as summarised in Figure 1 below.
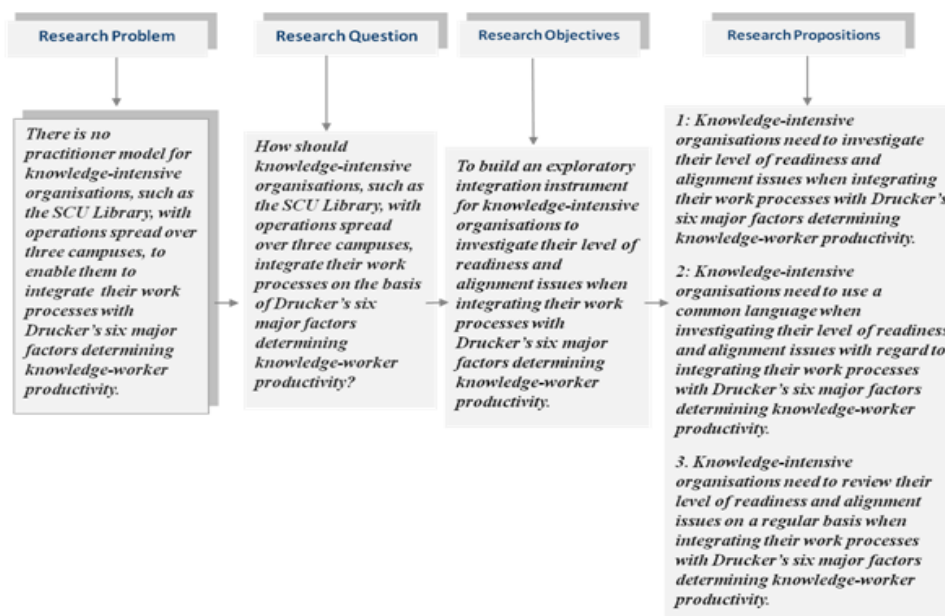
Figure 1. The research map summarising the research issues
Source: Developed for this research

1.1 Self-administered questionnaire survey discussions

To address the three research propositions, this research adopted a mixed-method multiple case study approach involving a self-administered questionnaire survey followed by a structured interview. This research study is about investigating how knowledge-intensive organisations integrate their work processes with Drucker's six major factors determining knowledge-worker productivity. The organisation chosen was: the SCU Library with operations over its three campuses after four organisations were short-listed.

The short-listed organisations within the Northern Rivers included the Queensland Airport Authority, the Madura Tea Estate and McManus Present. Queensland Airport Authority, representing a local service industry was second on the list. The Madura Tea Estate, representing the manufacturing sector, also in the local area, was third on the list. McManus Present, representing the marketing sector, has some local presence but it is more a national organisation based in Melbourne. McManus also made the short list.

However, the Southern Cross University library operations were selected over the other three short-listed organisations because they are:
- knowledge-intensive operations;
- facing challenges in today's knowledge-based economy;
- within the limited resources and time-frame of this research;
- locally based; and
- easily accessible.

The questionnaire survey set out to collect data at the '*university*', '*campus*' and '*individual*' levels. '*Individual*' level refers to individual staff level. The survey was bounded by a common theme, in that participants were advised to complete the strategy section first before responding to the ranking questions. Inconsistencies were found when participants were asked to complete the strategy question. Some respondents left both the '*university*' and their '*campus*' strategies blank. Two respondents reported their '*campus*' strategy to be the same as the '*university*' strategy. Non-completion or misinterpretation of strategies by some participants indicated a lack of understanding of strategy at '*university*' and/or '*campus*' level. As a result, some participants could have responded without referring to their '*university*' and/or their '*campus*' strategies. Such responses, based on personal views, rather than on '*university*' and '*campus*' strategies, may have affected the findings.

A seven-point Likert Scale was engaged. It offered the following options: strongly disagree (1), moderately disagree (2), slightly disagree (3), undecided (4), slightly agree (5), moderately agree (6) and strongly agree (7). For future studies, it is suggested that participants be asked to study the pre-printed strategy statement first. They would then be asked to assess the survey questions, directed at the '*university*' level, based on their assessment of their importance to achieving the '*university*' strategy. They would also be asked to assess the same survey questions, directed at the '*university*' level, based on their assessment of what was being done to achieve the '*university*' strategy. They would also be asked to respond to '*campus*' and '*individual*' survey questions in a similar fashion.

A re-design of this self-administered questionnaire survey using pre-printed strategy statements for future study is, therefore, justified. Figure 2 is a snapshot of the questionnaire survey at *'university'* level. Due to similarity in presentation the snapshots at *'campus'* and *'individual'* levels were not repeated.

SECTION ONE: UNIVERSITY LEVEL

The SCU Strategy: Please write here what you feel to be the SCU strategy.

Change to pre-defined strategy for future studies

Your Campus:

Management: Yes/No

NOTE: Please rate first the importance of the issue for any organisation and then rate again the same issue, in your view, how your organisation is in achieving its organisation strategy. Please rate each statement relevant to the **SCU Strategy** with a circle or an underline. *Knowledge workers refer to people working with intangible resources and they should know more about their jobs than anybody else in the organisation (Drucker, 1999).*

| Importance		Strongly Disagree / Moderately Disagree / Slightly Disagree / Undecided / Slightly Agree / Moderately Agree / Strongly Agree
	1A-il: Leaders should provide clear visions that sustain their universities.	1 2 3 4 5 6 7
	1B-is: Strategic planning process should help identify potential blind spots.	1 2 3 4 5 6 7
	1C-ic: Universities should have a system to identify and pursue customers.	1 2 3 4 5 6 7
Practice	1A-iil: SCU leaders provide clear vision that sustains the University.	1 2 3 4 5 6 7
	1B-iis: SCU strategic planning process helps identify potential blind spots.	1 2 3 4 5 6 7
	1C-iic: SCU has a system to identify and pursue customers.	1 2 3 4 5 6 7

Figure 2 Snapshot of survey at '*university*' level to include pre-defined strategy
Source: Developed for this research

2.1.1 Survey report discussions 1—Readiness Detail Report

This survey questions were adapted from Baldrige's 2006 Criteria for Performance Excellence based on nine descriptive building blocks used as a common-language directed at '*university*', '*campus*' and '*individual*' levels. The nine building blocks are *'customer', 'flexibility', 'human resources', 'information and knowledge management', 'leadership direction', 'measurement and feedback', 'process', 'level of relationship'* and *'strategic planning'*. The terms and definitions of the nine building blocks can be found in Part One of the article (see previous article in Review of International Comparative Management, 2010, vol. 11, issue 4, pages 685-695).

Figure 3 *'Readiness Detail Report'* represents the responses from participants for individual building blocks: '*customer (C)', 'flexibility (F)'* and *'human resources focus (H)'* for demonstration. Due to similar pattern of responses, the snapshots for the other six building blocks were not repeated.
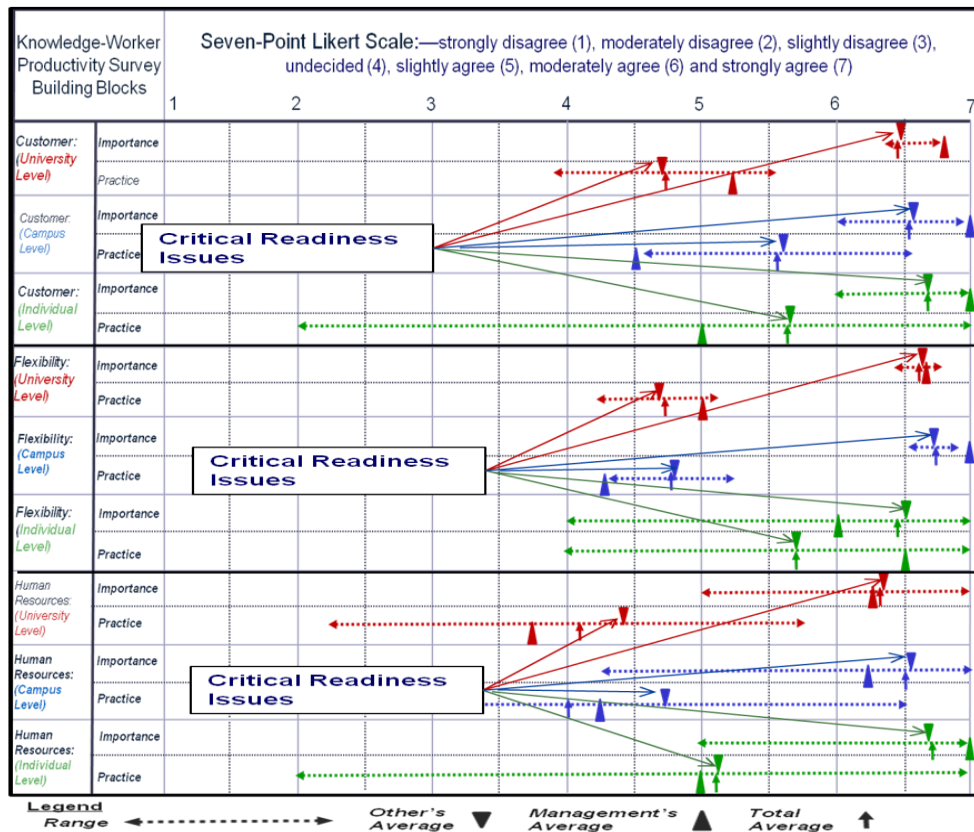
Figure 3 Readiness Detail Report
Source: Developed for this research

The readiness detail report highlights a significant difference of survey responses regarding what was considered important and what was practised over the three campuses. Report findings exposed some critical readiness issues as highlighted by solid arrows in:

1. Rankings for '*importance*' were consistently higher than that for '*practice*' at university, campus and individual levels, indicating there could be some readiness issues;

2. Ranges for '*importance*' were consistently narrower than that for '*practice*' at university, campus and individual levels, indicating that there was a greater agreement of what was considered to be important than what was practised; and

3. Differences of averages for participants who were in management and participants who were not in management, indicating their differences in opinions with regard to level of readiness.

These three levels of the survey also confirmed in the literature, that one way to understand how well an organisation possesses ability to deliver its business

goal is to assess the state of the business at an organisational level, by analysing such issues as its quality of leadership, quality of motivation and quality of its capabilities. However, to understand why a business is performing the way it does, is to observe its individual unit levels (Thomas & Barron, 1994, Rittenhouse, 1992). The survey also confirmed the rationale that even though the investigation is about inquiring the performance of the whole business, individual units or indeed individuals sometimes participate in particular ways governed by their attitudes, knowledge and skills (Bloom, 1956).

This *Readiness Detail Report* provides one perspective for knowledge-intensive organisations to investigate their level of readiness when considering to moving in the direction of Drucker's knowledge-worker productivity.

2.1.2 Survey report discussions 2—Readiness Summary Reports

In addition to the critical issues discussed above, Figure 4 '*Readiness Summary Report 1 (Overall View)'*, Figure 5 *'Readiness Summary Report 2 (Categorised View)'* and Figure 6 *'Readiness Summary Report 3 (Comparative Analysis)'* all highlight visually notable differences of overall rankings between what was considered important and what was practised. The rankings for '*importance*' were higher than the rankings for '*practice*' at '*university*', '*campus*' and '*individual*' levels. These visually notable differences between expectations and reality could have impacts on staff morale, job satisfaction, retention rates and other human resources issues affecting knowledge-worker productivity.
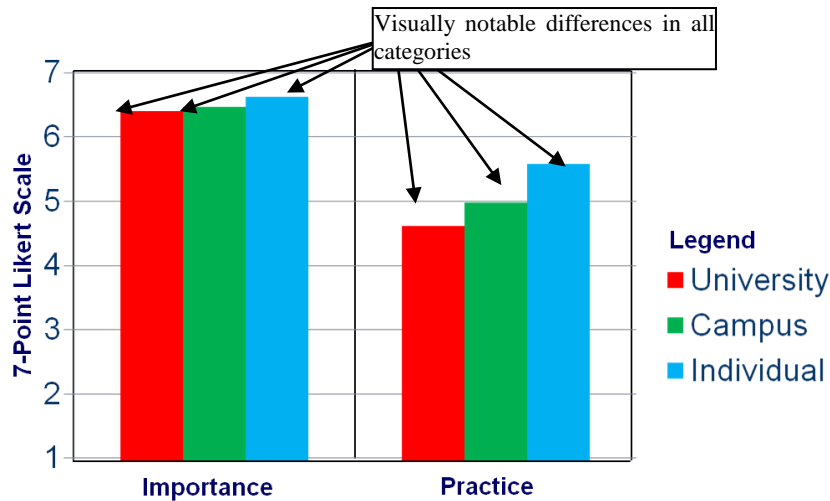
Figure 4 Readiness Summary Report 1 (Overall View)
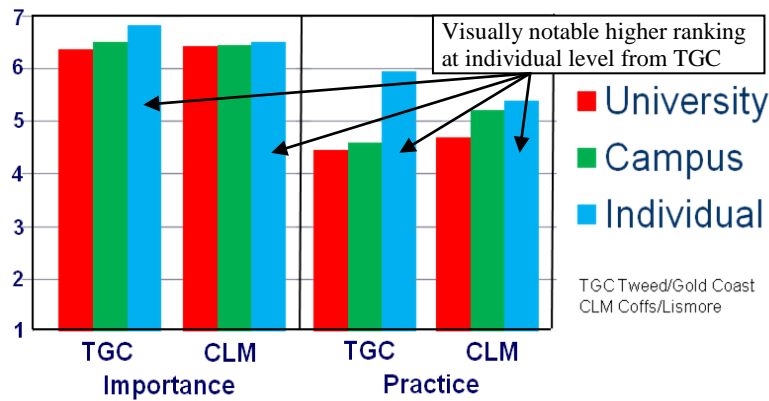**Source**: Developed for this research
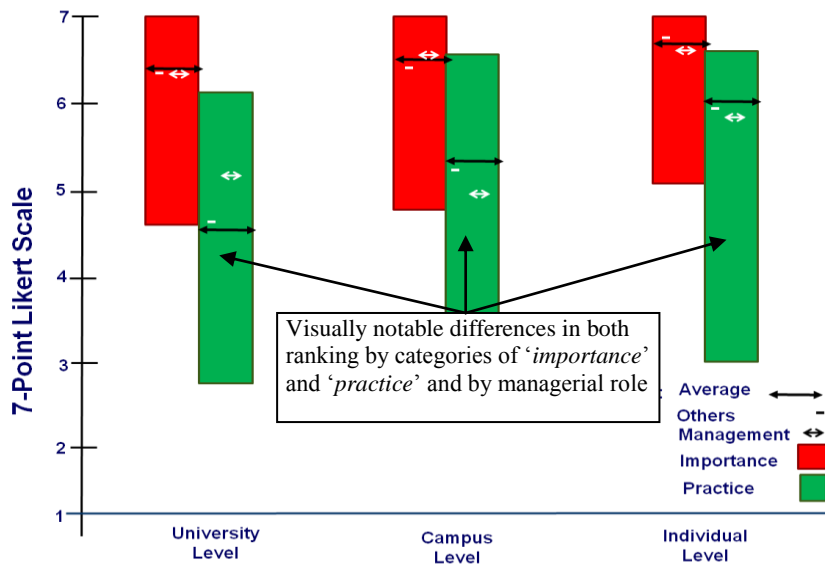
Figure 5 Readiness Summary Report 2 (Categorised View)
Source: Developed for this research

By inspection, both *'Readiness Summary Reports'* showed visually notable differences between overall rankings of what was considered important and what was practised. The rankings for '*importance*' were higher than the rankings for '*practice*' at '*university*', '*campus*' and '*individual*' levels. Figure 6 below also displayed repeating patterns as both campuses showed consistently higher rankings for *'importance'* than for *'practice'* at *'university', 'campus' and 'individual'* levels. The validity of generalisations from this research was deemed valid due to identical findings from its multiple case study approach. However the overall comparative higher ranking at '*individual*' level and identical or lower rankings at '*university*' and '*campus*' levels at the Tweed/Gold Coast (TGC) than Coffs/Lismore (CLM) could indicate higher awareness and practice of knowledge-worker productivity. Again, these three *Readiness Summary Reports* provide a different perspective for knowledge-intensive organisations to investigate their level of readiness when considering to moving in the direction of Drucker's knowledge-worker productivity.

Again, these three *Readiness Summary Reports* provide a different perspective for knowledge-intensive organisations to investigate their level of readiness when considering to moving in the direction of Drucker's knowledge-worker productivity.

Figure 6 Readiness Summary Report 3 (Comparative View)
Source: Developed for this research

2.1.3 Survey report discussions 3—Inter-Campus Alignment Reports

A second group of reports were designed to extract alignment information from the same survey database. The *'Inter-Campus Alignment Reports'* at *'university'*, *'campus'* and *'individual'* levels are represented in a 2x2 matrix format. The diagonal line represents the alignment line. Any point on this line indicates opinions in the campuses were the same. The X-axis shows rankings from the Tweed/Gold Coast (TGC) campus and the Y-axis shows combined rankings from Coffs Harbour/Lismore (CLM) campuses. Participants' responses were grouped under:

1. Quadrant 1 indicating agreement between TGC and CLM with lower readiness rankings;
2. Quadrant 4 (Q4) indicating agreement between TGC and CLM with higher readiness rankings;
3. Quadrant 2 (Q2) indicating differences in opinions between TGC and CLM where TGC's rankings were higher than that of CLM's; or
4. Quadrant 3 (Q2) indicating differences in opinions between TGC and CLM where CLM's rankings were higher than that of TGC's.

The ranking scale is a seven-point Likert Scale. Options were: strongly disagree (1), moderately disagree (2), slightly disagree (3), undecided (4), slightly agree (5), moderately agree (6) and strongly agree (7).

The *'Inter-Campus Alignment Report'* (Figure 7) indicated that there could be level of readiness and alignment issues described by the nine building blocks between TGC and CLM at all levels (due to a similar response pattern, only the snapshot at *'university'* level was presented. Responses at the *'campus'* and *'individual'* levels were not repeated). As highlighted by dashed-arrows and circles, there were visually notable differences between participants' responses regarding what they considered important (higher rankings) and what was practised (lower rankings) indicating potential level of readiness issues. High-lighted

building block items that fell significantly outside the alignment line indicate potential alignment issues. In theory, even with cultural differences taken into account, both TGC and CLM should have responded with little or no significant differences as they are all managed by the same Southern Cross University executive team.
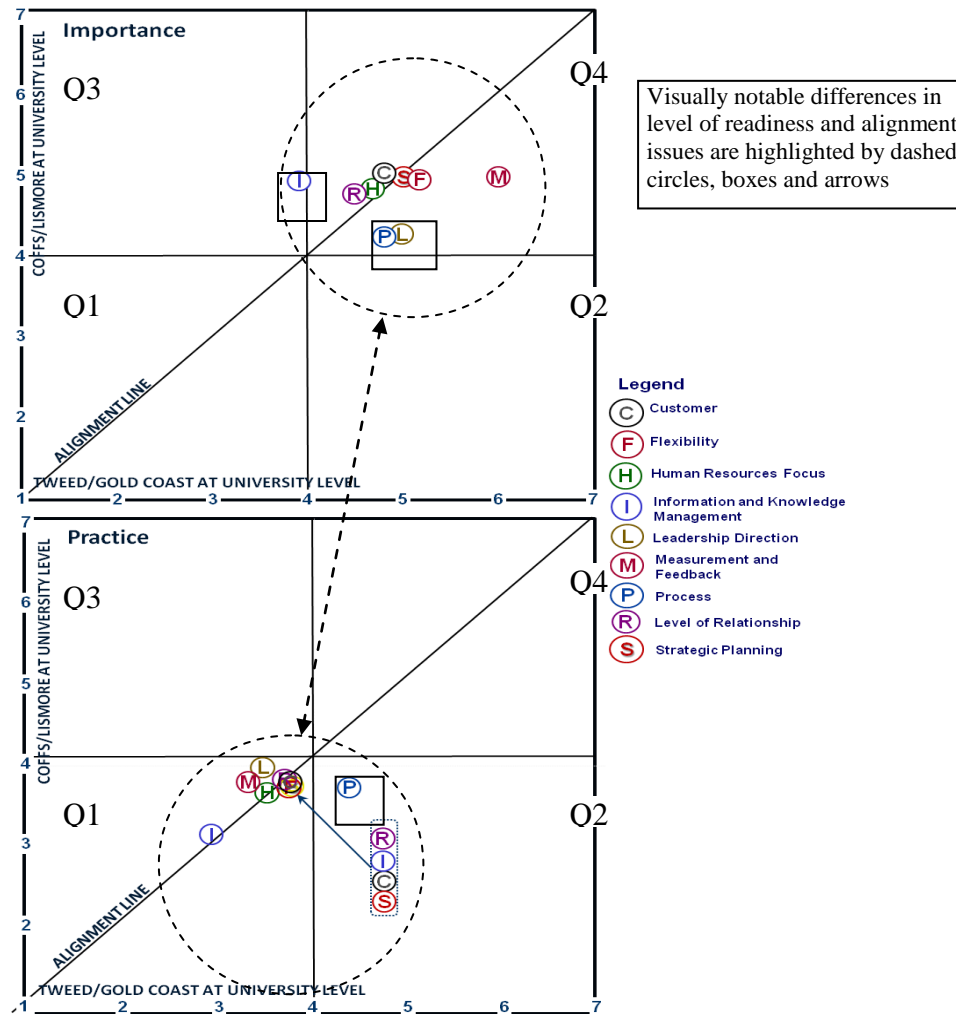
Figure 7 Inter-Campus Alignment Report (Comparative View)
Source: Developed for this research

As discussed before, these *Inter-Campus Alignment Reports* should provide a different perspective for knowledge-intensive organisations to investigate, beside their level of readiness, the alignment issues when considering to moving in the direction of Drucker's knowledge-worker productivity.

1.2 Structured interview discussions

The second part of this mixed-method study followed Patton's (2002) suggestion to invite participants back for a follow-up review:

"Having those who were studied review the findings offers another approach to analytical triangulation. Researchers and evaluators can learn a great deal about the accuracy, completeness, fairness, and perceived validity of their data analysis react to what is described and conducted. (Patton, 2002)"

Empirical findings from the self-administered questionnaire survey, developed from the *Organisation Readiness Survey Matrix* (see previous article in Review of International Comparative Management, 2010, vol. 11, issue 4, pages 685-695) displayed visually notable differences in readiness rankings for the participating SCU library knowledge workers within the same campus and between campuses indicating their level of readiness and potential alignment issues when integrating their work processes with Drucker's six major factors determining knowledge-worker productivity. However, analysis and interpretation of these reports depend upon the context and meaning perceived by the participating knowledge workers within the organisation being surveyed. The quantitative readiness and alignment reports, discussed previously, provided a focal point and a justification for participants to investigate potential readiness and alignment issues.

At the follow-up interview, it was first explained to the participants that the present study, "Drucker's Knowledge-Worker Productivity Theory: A Practitioner's Approach to Integrating Organisational Work Processes with Drucker's Six Major Factors Determining Knowledge-Worker Productivity", was based on the Concept Map: *Drucker/Baldrige/Wong Organisation-wide Development Model (shortened to the Organisation Development Model—Figure 8).*

The concept map interlinks Drucker's six major factors determining knowledge-worker productivity concept (Drucker, 1999), the nine building blocks concept adapted from Baldrige's (2006) criteria of performance excellence and the growth concept adapted from Wong's (2009) growth model for sales professionals.

The fact that no participants raised any questions about the concept map indicated its clarity and their acceptance of the logical description of the Concept Map. Their acceptance of this Concept Map also coincided with the findings from the literature that a practitioner's approach to Drucker's knowledge-worker productivity theory should incorporate Drucker's (1999) six major factors determining knowledge-worker productivity, Baldrige's (2006) criteria of performance excellence as the building blocks when investigating readiness and alignment issues and three levels of assessment from organisational, departmental to individual level (Wong, 1999, Thomas & Barron, 1994, Rittinghouse, 1992, Bloom, 1956).

No participants questioned the logic of this concept map in this mixed-method multiple case studies
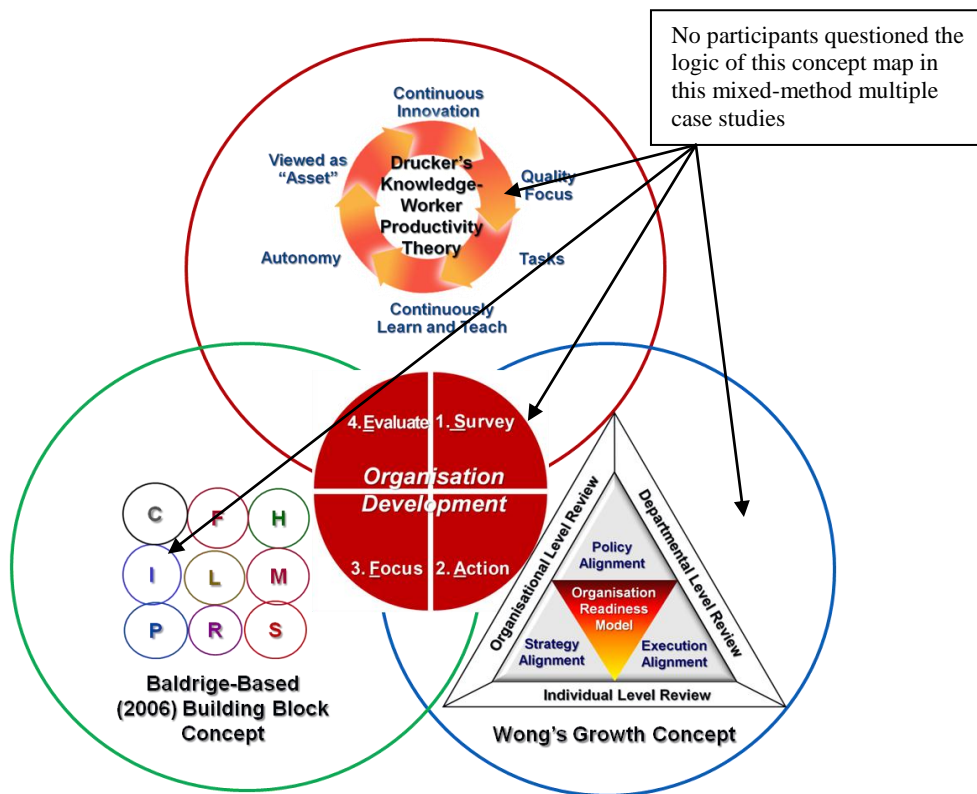
Figure 8 Drucker/Baldrige/Wong Organisation-wide Development Model
Source: Developed for this research

When reviewing reports generated from the survey, participants must also realise that a high or low readiness score on its own is not good or bad. Similarly, the highest or the lowest average score at either end of the Likert Scale could represent assets or liabilities. Therefore, at the structure interview the participants were asked to refer to the report interpretation guide (Table 1).

Again, the participants did not raise any questions about the interpretation guide indicating its clarity and their acceptance of the report interpretation logic. They then proceeded to review the quantitative data presented in the readiness and alignment reports discussed previously. When they were asked whether the results were a surprise to them, both of them said that they were not surprised at the noticeable differences. One participant said "*No surprises to see the differences. Other campus may see things differently from us because of the different nature of tasks. However, we are all under one central management team and it is still strange to see these differences. Maybe we have newer and smaller staff number and we are not ingrained in the SCU's culture.*" They identified four readiness and alignment issues at the interview (Table 2).

Table 1 Report interpretation guide

Low Ranking Building Blocks	High Ranking Building Blocks
Pros	**Pros**
• May be Irrelevant • May free up resources • May avoid unnecessary conflicts	• May enhance corporate direction • May reinforce organizational readiness • May show capability strength • May indicate organizational culture
Cons	**Cons**
• May send out unclear or confusing message • May result in poor accountability • May be an excuse for poor performance	• May be counter productive • May be irrelevant • May be de-motivational rather than motivational

All participants accepted the interpretation logic for report review

Source: Developed for this research

Table 2 readiness and alignment issues

1. The first issue was between what the participants considered to be important and practised at campus level;
2. The second issue was between management and non-management responses;
3. The third issue was some alignment issues between Tweed/Gold Coast (TGC) and Coffs/Lismore (CLM); and
4. The fourth issue was the discrepancy in participants' understanding of strategies.

Source: Developed for this research

They were then asked the following question relating to Research Proposition 1: "*How important is it for knowledge-intensive organisations to investigate their readiness status and alignment issues when integrating their work processes with Drucker's six major factors determining knowledge-worker productivity?*" All of them positively supported the question pertaining to Research Proposition 1. They all said it was important and one of them said it was very important.

The participants were then asked a question relating to Research Proposition 2: "*How important is the need for Knowledge-intensive organisations to use a common language when investigating their level readiness and alignment issues with regards to integrating their work processes with Drucker's six major factors determining knowledge-worker productivity?*" All participants said "very important" and one of the respondents rated the response as seven out of seven on a seven-point scale where seven was the most important.

As Holland (1992, p 170) points out "*...if I have a process that can discover building blocks, the combinatorics start working for me instead of against me. I can describe a great many complicated things with relatively few building blocks*". In this case, nine building blocks were adapted from Baldrige's (2006) criteria for performance excellence. This building block concept, as a common language, could be used by knowledge workers to describe how their organisations should work together as a team to achieve their business goal.

The practitioner's approach to Drucker's knowledge-worker productivity theory is an organisation-wide development process which requires continuously regular inputs from knowledge workers to achieve performance excellence as expressed by Peters (2009) who argued that "*Excellent firms don't believe in excellence—only in constant improvement and constant change.*" Therefore, if the investigation of the readiness and alignment reports was carried out as a report-review and integration-planning workshop rather than a structured interview and the process was repeated on a regular basis, the respondents might create an environment supporting Drucker's (1999) six major factors determining knowledge-worker productivity.

The concept of this survey/action planning/focus/evaluate workshop (see Figure 8) was discussed with the participants as a conceptual investigation. Due to resources and time constraints, and the scope of the Doctor of Business Administration (DBA) study, rather than an empirical study of the implementation of Drucker's knowledge-worker productivity theory, they were asked the question relating to Research Proposition 3 "*How important is it to run this knowledge-worker productivity survey and review process on a regular basis?*" The interviewed participants all supported the importance of running the review process on a regular basis with one participant commented that that "*this process should be run at the beginning of Drucker's knowledge-worker productivity transformation to establish a benchmark and on a regular basis*".

However, if the available resources and time allowed and the scope of the study was extended beyond this DBA research, this four-phase survey, review, planning and feedback process could become a knowledge-worker productivity framework for the participants from the three campuses to investigate, plan, focus and report their level of readiness and alignment issues with regard to integrating their library work processes with Drucker's six major factors determining knowledge-worker productivity.

The participating respondents could have:

1. Identified and created tasks to achieve both short-term and long-term productivity gains;

2. Taken on responsibility for productivity gain and managed themselves;

3. Created continuous innovation through this *Knowledge-Worker Productivity Integration Mechanism*—a planning process for knowledge-worker productivity;

4. Learned and taught each other throughout the process;

5. Focussed on quality of output as equally as quantity of output in achieving department and their organisation strategies;

6. Viewed their contributions as an intellectual 'asset' rather than just a labour 'cost'.

In summary, the survey reports generated from the quantitative data helped the participants to focus on critical issues relating to readiness and alignment issues. The mixed-method technique questionnaire survey followed by the report review through the structured interview should provide knowledge-intensive organisations with a model to objectively assess their readiness and alignment issues moving in the direction of Drucker's knowledge-worker productivity theory.

2 Theoretical contributions

In an attempt to expand the extant literature to effectively achieve Drucker's six major factors determining knowledge-worker productivity, this study offers five significant contributions for policy makers to consider when making the decision to follow Drucker's knowledge-worker productivity theory:

1. This study contributes a critical review of the existing literature on Drucker's knowledge-worker productivity theory based on the problem identified within the researcher's growth concept for professional sales—the lack of a practitioner's approach to integrate work processes with Drucker's six factors determining knowledge-worker productivity. This professional problem led to the identified gap backed up by a detailed overview of the relevant studies from which the Concept Map: *Drucker/Baldrige/Wong Organisation Development Model (shortened to the Organisation Development Model)* was developed;

2. The study confirmed the understanding that organisational level of readiness is crucial for knowledge-intensive organisations to integrate their work processes with Drucker six major factors determining knowledge-worker productivity. It also developed the *Knowledge-Worker Productivity Survey Matrix* upon which knowledge-intensive organisations can investigate their level of readiness based on organisational, departmental and individual perspectives. The same survey can be used to investigate both inter- and intra- departmental alignment issues;

3. The study does not investigate implementing Drucker's six major factors determining knowledge-worker productivity from an outsider's point of view because, by Drucker's (1999) definition, knowledge workers know more about their jobs than anyone else. Therefore, this research utilises the contributions of knowledge workers from within knowledge-intensive organisations to describe, investigate, focus and report their analysis and findings to achieve their shared goal(s) based on a common language built on the Baldrige's performance criteria;

4. The study filled the gap created by a lack of empirical evidence in the literature for a practitioner's approach to Drucker's knowledge-worker productivity theory, especially in the context of regional Australia knowledge-intensive organisations. The empirical result confirmed that integrating existing work processes with Drucker's six major factors determining knowledge-worker productivity is achievable for knowledge-intensive organisations in regional Australia; and finally,

5. Another significant theoretical contribution of this study relates to methodology. The *Knowledge-Worker Productivity Integration Mechanism*—a four-phase survey/review/planning/ feedback implementation process, when deployed on a regular basis, should help knowledge-intensive organisations implement Drucker's six major factors with their existing work processes. This framework, although only conceptually presented, could be empirically tested in future research. It might also be tested and adapted in other contexts, such as in major Australian cities where modes of operation and cultural norms may be different to those found in regional Australia where this instrument was originally developed.

3   Practical contributions

In Improving productivity and indeed knowledge-worker productivity is far from simply being a research problem. It has become a global economic, social and multi-disciplinary policy issue (Prokopenko & North, 1996). Without doubt, most business executives and senior managers today would agree with Drucker on the importance of having to improve the quality of their knowledge-based endeavours and the productivity of their knowledge workers. This study, therefore, attempts to provide a practitioner's solution to Drucker's knowledge-worker productivity theory in four areas where practitioners could adopt when making a procedural decision integrating Drucker's six major factors determining knowledge-worker productivity with their work processes:

1. This study provides knowledge-intensive organisations with the *Knowledge-Worker Productivity Survey Matrix,* which can be utilised to investigate readiness and alignment issues, when integrating Drucker's six major factors determining knowledge-worker productivity with their existing work processes such as SalesForceDotCom, Oracle On Demand, or Microsoft Dynamic CRM or other systems. This study also highlighted the need to investigate organisational, departmental and individual readiness status and alignment issues, as well as the contributions from internal knowledge workers, to use a common organisational approach to eliminate factors negatively affecting productivity;

This study is a call for business processes to be aligned and integrated as a whole regardless of whether they are moving in the direction of Drucker's knowledge-worker productivity theory or not because the prime focus of any business is still about creating and retaining customers. Always, it is the customer who determines what a business is (Drucker, 1973, Thomas & Baron, 1994). Without customers, integrating work processes with knowledge-worker productivity practice has no meaning;

2. This study also provides knowledge-intensive organisations with a *Knowledge-Worker Productivity Integration Mechanism*—a planning process to describe, investigate, focus and report organisational, departmental and individual readiness status alignment issues to achieve their shared goal(s) based on a common language;

3. Again, based on the *Knowledge-Worker Productivity Survey Matrix*, this study helps knowledge-intensive organisations achieve an organisation-wide open

communication culture while investigating issues affecting sustainable growth from their knowledge workers; and finally,

4. A significant practical contribution of this study is providing a practitioner's approach for any knowledge-intensive organisation to integrate their work processes with Drucker's six major factors determining knowledge-worker productivity and face the critical management challenge of the 21st century by improving productivity through their knowledge workers (Drucker, 1999). an attempt to expand the extant literature to effectively achieve Drucker's six major factors determining knowledge-worker productivity, this study offers five significant contributions for policy makers to consider when making the decision to follow Drucker's knowledge-worker productivity theory.

4 Limitations of the study

Although the study presents strong supporting evidence regarding a practitioner's approach to Drucker's knowledge-worker productivity theory, the results should be interpreted in the light of the study's limitations.

1. This study may contain response bias associated with a low response rate from the self-administered questionnaire survey and participating respondents in the follow-up structured interview. Arranging for a single organisation to participate in this field study, took over six months. Initially, four local organisations and one overseas organisation were approached. However, following numerous face-to-face conversations, emails and phone communications, they remained undecided about participating. Their main concern, as interpreted by the researcher, could have been that they were reluctant to disclose their business operations.

Eventually, SCU library operations were approached and they agreed to take part in the survey, but the study only attracted a low response rate (see Section 4.8). Therefore, future studies may have to use combined organisational and individual approaches to obtain a higher response rate;

2. This study surveyed participants based on their understanding of both the organisation and their campus strategies at the time of the survey. Some respondents could have responded without referring to their organisation and/or their campus strategies. Such responses, based on personal views, rather than on organisational and campus strategies, may have affected the findings. Future researchers might consider changing to a researcher-led survey rather than self-administered survey; and finally,

3. Due to resource, time and scope constraints, the *Knowledge-Worker Integration Mechanism, a knowledge-worker productivity planning process*, was studied at a conceptual level only. This *knowledge-worker productivity planning process* should be empirically tested in future research. It might also be tested and adapted in other contexts, such as knowledge-intensive organisations operating in major Australian cities where modes of operation and cultural norms may be different from those found in regional Australia where this instrument was originally developed.

5 Future research

This study could offer future research opportunities to extend the current body of knowledge, in both the literature on the empirical study of Drucker's knowledge-worker productivity theory, and the study of a practitioner's approach to integrating existing organisation work processes with Drucker's six major factors determining knowledge-worker productivity.

Other future research opportunities, to investigate, beyond the conceptual level, the proposed practitioner's approach of the *Knowledge-Worker Productivity Mechanism* include:

1. A combined organisational and individual survey to attract a larger response more appropriate to quantitative analysis;

2. Overseas and major Australian cities research since this study focused on knowledge-intensive organisations in the Northern Rivers/Tweed area;

3. Cal testing of the *Knowledge-Worker Productivity Integration Mechanism*, a knowledge-worker productivity planning process mechanism as the process was investigated only at a conceptual level in this study.

Conclusions

This study examined a practitioner's approach to the steps needed for knowledge-intensive organisations to integrate their work processes with Drucker's six major factors determining knowledge-worker productivity. Knowledge-worker productivity is the biggest management challenge of the 21st century (Drucker, 1999). It is likely that industrialised countries will rely more and more on their knowledge-worker productivity rather than on advances in production equipment. Improving knowledge-worker productivity is therefore a key survival requirement for companies in these countries.

The study investigated knowledge workers, employed as SCU librarians. It examined their level of readiness and alignment issues when integrating their work processes on the basis of Drucker's six major factors determining knowledge-worker productivity. The study was designed to improve productivity, the quality of work, to empower knowledge workers to accomplish their tasks and, consequently, the organisation's tasks, by following an organisation-wide unified strategy in an interdependent way that brings about a 'doing thing right' approach.

This study was an attempt to investigate how a practitioner's approach to integrate business work processes with Drucker's six major factors determining knowledge-worker productivity should be done. This study also showed that the methodology employed provided positive results. It is suggested that more studies using this technique should provide the quantitative data to strengthen the methodology. It is also noted that at no stage, the findings contradict the research propositions. Knowledge-intensive organisations could now use this methodology to investigate and resolve readiness and alignment issues when moving in the direction of Drucker's knowledge-worker productivity theory. Future studies should expand the implications of the findings into new areas.

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